# STIC Search Report
## EIC 2800

USPTO

## STIC Database Tracking Number: 147243

| TO: | From: |
|---|---|
| Andre Allen<br>Location: JEF-8A34<br>Art Unit : 2855<br>Tuesday, March 15, 2005<br>Case Serial Number: 10/712963 | Bode Fagbohunka<br>Location: EIC 2800<br>Jeff 4A58<br>Phone: 571-272-2541<br>bode.fagbohunka@uspto.gov |

## Search Notes

Examiner **Andre Allen**

Please find attached the results of your search for **10/712963** The search was conducted using the standard collection of databases on dialog for EIC 2800. The tagged references appear to be the closest references located during our search.

If you would like a re-focus please let me know or if you have any questions regarding the search results please do not hesitate to contact me.

Bode Fagbohunka

343/+ [ HOANGANH LE 2821 ]

356/+ [ FANNIE EVANS 2877 ]

333/+ [ BENNY LEE 2817 ]

250 [ STEPHONE A. ]

sira
Search and Information Resources Administration

147243

**SEARCH REQUEST FORM** **Scientific and Technical Information Center - EIC2800**

Rev. 3/15/2004 This is an experimental format -- Please give suggestions or comments to Jeff Harrison, JEF-4B68, 272-2511.

Date 3-9-05 Serial # 10/712963 Priority Application Date

Your Name EX. ANDRE ALLEN Examiner # 78079

AU 2855 Phone 22174 Room 8A34

In what format would you like your results? Paper is the default. PAPER DISK EMAIL

**If submitting more than one search, please prioritize in order of need.**

**The EIC searcher normally will contact you before beginning a prior art search. If you would like to sit with a searcher for an interactive search, please notify one of the searchers.**

3-09-05 A 8514

**Where have you searched so far on this case?**

Circle: USPT DWPI EPO Abs JPO Abs IBM TDB

Other: PGPUBS

**What** relevant art have you found so far? Please attach pertinent citations or Information Disclosure Statements. 6739195

**What** types of references would you like? Please checkmark:

Primary Refs X
Secondary Refs X
Teaching Refs X
Nonpatent Literature
Foreign Patents X
Other

What is the topic, such as the **novelty**, motivation, utility, or other specific facets defining the desired **focus** of this search? Please include the concepts, synonyms, keywords, acronyms, registry numbers, definitions, structures, strategies, and anything else that helps to describe the topic. Please attach a copy of the abstract and pertinent claims.

A TIRE MEASURING/MONITORING DEVICE WHICH CONTAINS A REFLECTOR THAT CAN BE MODULATED VIA AN ALTERNATING VALUE"

Staff Use Only

Searcher: Doug Hutchins

Searcher Phone: 22541

Searcher Location: STIC-EIC2800, JEF-4B68

Date Searcher Picked Up: 03-15-05

Date Completed: 03-15-05

Searcher Prep/Rev Time: 40

Online Time: 240

Type of Search

Structure (#)

Bibliographic ✓

Litigation

Fulltext

Patent Family

Other

Vendors

STN

Dialog ✓

Questel/Orbit

Lexis-Nexis

WWW/Internet

Other

CLASS 343 ANTENNAS?

6609419
6739195

10/712963
071308.0484
2002P18724US
PAGE 6
SPECS
We claim:

(47)

PATENT

converting Ambient energy into electrical means

753/754 343/909

343/713 711

1 1. A tire measuring device comprising:
2 a converter for converting ambient energy to an alternating value, and
3 a reflector that can be modulated via the alternating value.

- piezo layer yields elect. signal.
- paraelectrical dielectric controlled reflection by piezo signal.

1 2. The tire measuring device according to claim 1, wherein the reflector is a
2 reflector for an electromagnetic signal, particularly, for a high-frequency signal.

1/2

1 3. The tire measuring device according to claim 1, wherein the tire measuring
2 device further comprises an antenna.

1 4. The tire measuring device according to claim 1, wherein the tire measuring
2 device is a ~~backscatter~~ transponder.

1 5. The tire measuring device according to claim 1, wherein the tire measuring
2 device comprises a sensor for determining a measured value.

1 6. The tire measuring device according to claim 5, wherein the converter converts
2 the ambient energy to an alternating value as a function of the measured value.

1 7. The tire measuring device according to claim 5, wherein the tire measuring
2 device has means to influence the alternating value as a function of the measured
3 value.

1 8. The tire measuring device according to claim 1, wherein the alternating value
2 comprises a first alternating value and a second alternating value.

1 9. The tire measuring device according to claim 8, wherein the first and second
2 alternating values are alternating values which are derived from an original alternating
3 value that can be broken down and wherein, after the breakdown, the first and second
4 alternating value can be influenced differently by a measured value.

10. The tire measuring device according to claim 8, further comprising a second converter for generating the second alternating value.

11. The tire measuring device according to claim 1, further comprising:

- a piezoelectric layer as energy converter, and
- a layer with a controllable dielectric.

12. The tire measuring device according to claim 1, wherein the converter contains a piezoelectric fiber or is formed by one or several piezoelectric fibers.

13. A tire comprising a tire measuring device comprising:

- a converter for converting ambient energy to an alternating value, and
- a reflector that can be modulated via the alternating value.

14. The tire according to claim 13, wherein the tire measuring device is connected to the tire cover and/or vulcanized into the tire.

15. A rim with a tire measuring device, said device comprising:

- a converter for converting ambient energy to an alternating value, and
- a reflector that can be modulated via the alternating value.

16. A vehicle comprising:

a plurality of tires, wherein each tire comprises a tire measuring device comprising:

a converter for converting ambient energy to an alternating value, and

a reflector that can be modulated via the alternating value.

17. A method for tire measurement comprising the steps of:

- converting the ambient energy to an alternating value, and
- modulating a reflector via the alternating value.

18. The method according to claim 17, wherein the step of converting the ambient energy to an alternating value is performed as a function of a measured value.

19. The method according to claim 17, further comprising the step of influencing the alternating value as a function of a measured value.

20. The method according to claim 17, further comprising the step of generating a first alternating value and a second alternating value.

21. The method according to claim 17, wherein the first and second alternating values are alternating values which are derived from an original alternating value that can be broken down and wherein, after the breakdown, the first and second alternating value can be influenced differently by a measured value.

US 20040118197A1

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2004/0118197 A1

Bulst et al. (43) Pub. Date: Jun. 24, 2004

(54) TIRE MEASURING DEVICE WITH A MODULATED BACKSCATTER TRANSPONDER SELF-SUFFICIENT IN TERMS OF ENERGY

(76) Inventors: Wolf-Eckhart Bulst, Munchen (DE); Martin Vossiek, Hildesheim (DE)

Correspondence Address:
BAKER BOTTS L.L.P.
PATENT DEPARTMENT
98 SAN JACINTO BLVD., SUITE 1500
AUSTIN, TX 78701-4039 (US)

(21) Appl. No.: 10/712,963

(22) Filed: Nov. 13, 2003

(30) Foreign Application Priority Data

Nov. 15, 2002 (DE) ..... DE10253278.8

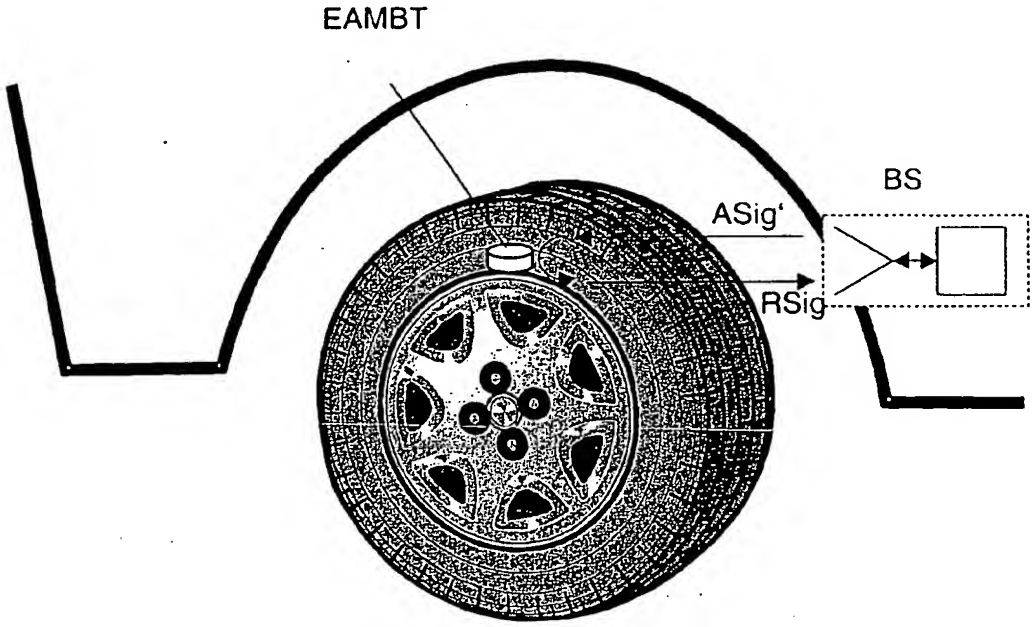
Publication Classification

(51) Int. Cl.[7] ..... G01M 17/02

(52) U.S. Cl. ..... 73/146

(57) ABSTRACT

A tire measuring device has a converter for converting the ambient energy to an alternating value, and a reflector that can be modulated by the alternating value.



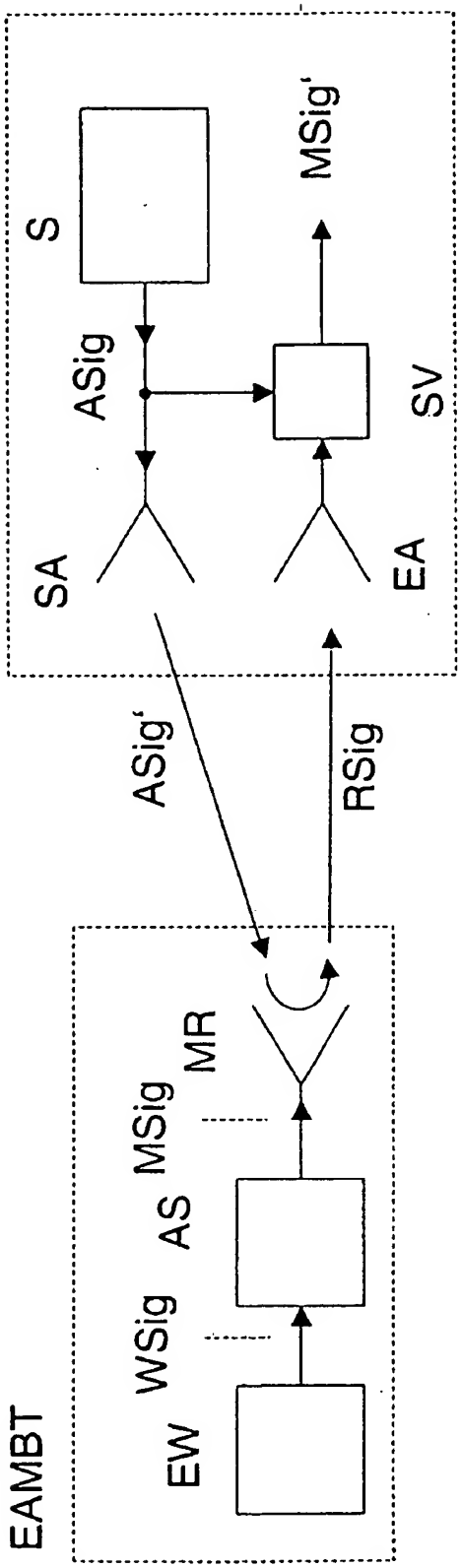



Fig. 1

Fig. 9

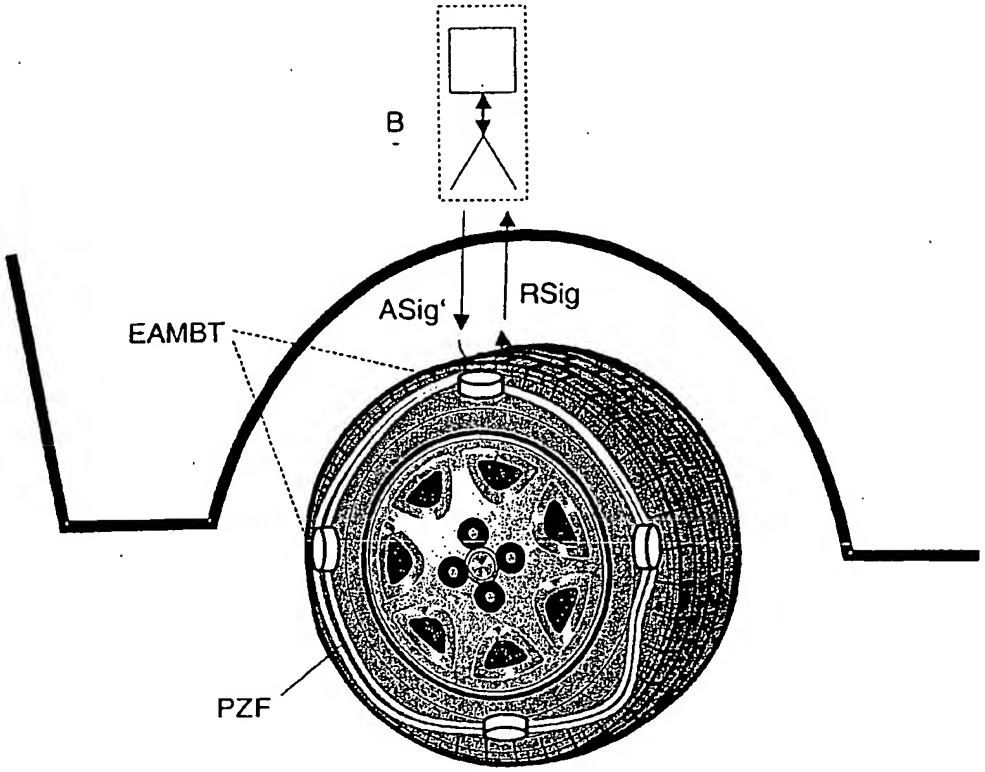
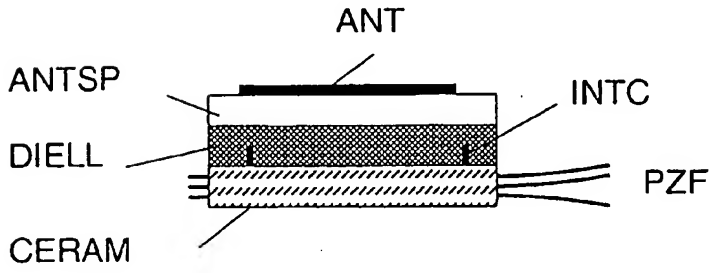



Fig. 10



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Set     Items   Description
S1        274   AU= (BULST W? OR BULST, W? OR VOSSIEK, M? OR VOSSIEK M?)
S2     115498   TIRE? ?
S3   23463731   MEASUR? OR EVALUAT? OR CALCULATE? OR COMPUT? OR MONITOR?
S4    2090486   REFLECT?
S5     734121   CONVERTER?
S6       7838   ALTERNAT?(3N)VALUE?
S7    1328943   MODULAT?
S8       2695   AMBIENT(3N)ENERGY
S9       5716   S2(3N)S3
S10         1   S9 AND S1
S11         0   S9 AND S4 AND S7 AND S6
S12        53   S9 AND S5
S13         0   S12  AND S6
S14         3   S4 AND S12
S15         2   S14 NOT S10
S16         2   RD (unique items)
S17        13   S9 AND (S8 OR REFLECTOR?)
S18         1   S9 AND S6
S19        14   S17 OR S18
S20        13   RD (unique items)
S21         0   S2 AND S6 AND (S7 OR S4)
S22         6   S2 AND S6
S23         6   RD (unique items)
S24        22   S2 AND S7  AND  S4
S25        22   RD (unique items)
S26         2   S2 AND S3 AND REFLECTOR? AND S7
S27         2   RD (unique items)
S28         0   S1 AND ALTERNATING()VALUE?
S29         0   S2 AND ALTERNATING()VALUE?
S30         6   S2 AND REFLECTOR? AND ELECTROMAGNET?
S31         6   RD (unique items)
S32      5498   IC=( G01L-017/00 OR B60C-019/00 OR B60C-023/00)
S33     25631   MC=(S02-F04B2 OR S02-F04C1A OR S02-J02A OR S03-B01C OR V06-
             -L01A2 OR X22-E02B OR X22-F03 OR X22-X06)
S34     29578   S32 OR S33
S35      2374   S34 AND S2 AND S3
S36         9   S35 AND REFLECTOR?
? show files
File   2:INSPEC 1969-2005/Feb W4
         (c) 2005 Institution of Electrical Engineers
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         (c) 2005 NTIS, Intl Cpyrght All Rights Res
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          (c) 2005 MIRA Ltd.
File  34:SciSearch(R) Cited Ref Sci 1990-2005/Mar W1
         (c) 2005 Inst for Sci Info
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
         (c) 1998 Inst for Sci Info
File  99:Wilson Appl. Sci & Tech Abs 1983-2005/Feb
         (c) 2005 The HW Wilson Co.
File  94:JICST-EPlus 1985-2005/Jan W5
         (c)2005 Japan Science and Tech Corp(JST)
File  92:IHS Intl.Stds.& Specs. 1999/Nov
         (c) 1999 Information Handling Services
File 144:Pascal 1973-2005/Mar W1
         (c) 2005 INIST/CNRS
File 647:CMP  Computer Fulltext 1988-2005/Feb W4
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File 103:Energy SciTec 1974-2005/Feb B2
(c) 2005 Contains copyrighted material
File 350:Derwent WPIX 1963-2005/UD,UM &UP=200517
(c) 2005 Thomson Derwent
File 347:JAPIO Nov 1976-2004/Nov(Updated 050309)
(c) 2005 JPO & JAPIO
File 239:Mathsci 1940-2005/Apr
(c) 2005 American Mathematical Society
File 95:TEME-Technology & Management 1989-2005/Feb W1
(c) 2005 FIZ TECHNIK
File 25:Weldasearch-19662005/Feb
(c) 2005 TWI Ltd
File 62:SPIN(R) 1975-2005/Nov W4
(c) 2005 American Institute of Physics
File 96:FLUIDEX 1972-2005/Feb
(c) 2005 Elsevier Science Ltd.
File 98:General Sci Abs/Full-Text 1984-2004/Dec
(c) 2005 The HW Wilson Co.
File 266:FEDRIP 2005/Jan
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27/9/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX


016293461 **Image available**
WPI Acc No: 2004-451356/200443
XRPX Acc No: N04-357165
**Energy-autonomous tire measurement device for measuring the operating parameters of a tire , especially for automotive use, comprises one or more piezoelectric fibers acting as both sensor elements and electrical energy supply**
Patent Assignee: SIEMENS AG (SIEI )
Inventor: BULST W; VOSSIEK M
Number of Countries: 001 Number of Patents: 001
Patent Family:

| Patent No | Kind | Date | Applicat No | Kind | Date | Week |
|---|---|---|---|---|---|---|
| DE 1020253367 | A1 | 20040603 | DE 12002053367 | A | 20021115 | 200443 B |

Priority Applications (No Type Date): DE 12002053367 A 20021115
Patent Details:

| Patent No | Kind | Lan | Pg | Main IPC | Filing Notes |
|---|---|---|---|---|---|
| DE 1020253367 | A1 | | 15 | G01L-017/00 | |

Abstract (Basic): DE 10253367 A1
NOVELTY - **Tire measurement** device consist of a piezoelectric fiber that acts as a sensor element for **measuring tire** operating variables. The inventive device also has a transmitter for transmission of sensor signals, with the energy for the transmitter derived from the electrical energy generated by the fiber. Optimally a network of fibers is formed into a grating or mesh that is incorporated in the steel reinforcing belt.
USE - Energy-autonomous **tire measurement** device for **measuring** the operating parameters of a **tire** , e.g. pressure, temperature, especially for automotive use.
ADVANTAGE - The inventive **measurement** device has piezoelectric fibers that act as both sensors and electrical energy source.
DESCRIPTION OF DRAWING(S) - The figure shows a block diagram of an energy autonomous remote interrogation **tire measurement** device.
energy autonomous **modulated** back-scatter transponder (EAMBT)
energy converter (EW)
signal source (S)
**modulation** signal (MSig)
**modulation** -enabled **reflector** . (MR)
pp; 15 DwgNo 1/10
Title Terms: ENERGY; AUTONOMOUS; **MEASURE** ; DEVICE; **MEASURE** ; OPERATE; PARAMETER; AUTOMOTIVE; COMPRISE; ONE; MORE; PIEZOELECTRIC; FIBRE; ACT; SENSE; ELEMENT; ELECTRIC; ENERGY; SUPPLY
Derwent Class: Q11; S02; S03; V06; X22
International Patent Class (Main): G01L-017/00
International Patent Class (Additional): B60C-019/00; B60C-023/00
File Segment: EPI; EngPI
Manual Codes (EPI/S-X): S02-F04B2; S02-F04C1A; S02-J02A; S03-B01C; V06-L01A2; X22-E02B; X22-F03; X22-X06
?

16/9/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX


014027741 **Image available**
WPI Acc No: 2001-511955/200156
**Device for** measuring **placing property of** tire
Patent Assignee: KUMHO IND CO LTD (KUMH-N); KUMHO EXPRESS CO LTD (KUMH-N)
Inventor: PARK B G
Number of Countries: 001 Number of Patents: 002
Patent Family:

| Patent No | Kind | Date | Applicat No | Kind | Date | Week | |
|---|---|---|---|---|---|---|---|
| KR 2001018535 | A | 20010305 | KR 9934519 | A | 19990820 | 200156 | B |
| KR 336192 | B | 20020510 | KR 9934519 | A | 19990820 | 200272 | |

Priority Applications (No Type Date): KR 9934519 A 19990820
Patent Details:

| Patent No | Kind | Lan | Pg | Main IPC | Filing Notes |
|---|---|---|---|---|---|
| KR 2001018535 | A | | 1 | G01M-017/02 | |
| KR 336192 | B | | | G01M-017/02 | Previous Publ. patent KR 2001018535 |

Abstract (Basic): KR 2001018535 A
NOVELTY - A device for measuring a placing property is provided to exactly measure the placed state between a tire and a wheel without transforming a shape of the tire.
DETAILED DESCRIPTION - A device for measuring a placing property comprises a displacement measurer(10) composed of a light receiving unit(11) and a light emitting unit(12); a signal processor(20) composing of an amplifier(21) and a **converter** (22); a microprocessor composing of a communication port(33), a storage device(34), a ROM(Read Only Memory)(31), a RAM(Random Access Memory)(32) and an output port(35); and an output device(40) to output an analyzed result of the microprocessor to a screen or a printer. The displacement measurer(10) measures a displacement with a **reflection** of light when the placing property between the tire and the wheel is **measured** . Thereby, the **tire** is not transformed. Moreover, the resolution of the displacement measurement is high and the fine difference of displacement is exactly measured by measuring with the light.
pp; 1 DwgNo 1/10
Title Terms: DEVICE; MEASURE; PLACE; PROPERTIES
Derwent Class: S02
International Patent Class (Main): G01M-017/02
File Segment: EPI
Manual Codes (EPI/S-X): S02-J02; S02-J02A

16/9/2 (Item 1 from file: 347)
DIALOG(R)File 347:JAPIO


05292245 **Image available**
METHOD AND DEVICE FOR **MEASURING** DYNAMIC CAMBER OF **TIRE** FOR AUTOMOBILE

PUB. NO.: 08-247745 [JP 8247745 A]
PUBLISHED: September 27, 1996 (19960927)
INVENTOR(s): SUTANRII JIEI ORESUKII
POORU BII UIRUSON
APPLICANT(s): BRIDGESTONE CORP [000527] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 07-344351 [JP 95344351]
FILED: December 06, 1995 (19951206)

PRIORITY: 7-402,247 [US 402247-1995], US (United States of America), March 10, 1995 (19950310)
INTL CLASS: [6] G01B-011/26; G01B-021/22; G01M-017/007
JAPIO CLASS: 46.1 (INSTRUMENTATION -- Measurement); 26.2 (TRANSPORTATION -- Motor Vehicles)
JAPIO KEYWORD:R002 (LASERS)

ABSTRACT

PURPOSE: To measure the camber angle with a light structure.
CONSTITUTION: A pair of **converters** 19 and 20 such as lasers mounted to a tire/wheel assembly body 2 of a moving automobile 1 are used and the lasers 19 and 20 are mounted to a bracket which is mounted toward the outside at right angle from a non-rotary type hub 6 being mounted to the tire/wheel assembly body 2 with a scheduled gap in a horizontal direction. While the automobile 1 is driving on a road, **reflection** laser beams from a pair of lasers 19 and 20 are continuously measured. The **reflection** beams determined the change of gap at the upper portion of the road surface of two lasers 19 and 20 and calculates the camber angle of the tire 4 from the determined change.
?

20/9/1 (Item 1 from file: 2)
DIALOG(R)File 2:INSPEC


8281253 INSPEC Abstract Number: B2005-03-2860C-009, C2005-03-3360B-111
**Title: Intelligent tires based on wireless passive surface acoustic wave sensors**
Author(s): Zhang, X.; Wang, F.; Wang, Z.; Wei Li; He, D.
Author Affiliation: Intelligent & Telematic Syst. Div., Chinese Acad. of Sci., Beijing, China
Conference Title: Proceedings. The 7th International IEEE Conference on Intelligent Transportation Systems (IEEE Cat. No.04TH8749) p.960-4
Publisher: IEEE, Piscataway, NJ, USA
Publication Date: 2004 Country of Publication: USA xxxvii+1108 pp.
ISBN: 0 7803 8500 4 Material Identity Number: XX-2004-02373
U.S. Copyright Clearance Center Code: 0 7803 8500 4/2004/$20.00
Conference Title: Proceedings. The 7th International IEEE Conference on Intelligent Transportation Systems
Conference Date: 3-6 Oct. 2004 Conference Location: Washington, WA, USA
Language: English Document Type: Conference Paper (PA)
Treatment: Practical (P); Theoretical (T)
Abstract: The structure and principle of an intelligent tire based on wireless passive surface acoustic wave (SAW) sensors are described. The SAW sensor is made by two identical delay lines on both sides of the substrate symmetrically. In each delay line, there were two **reflectors** with difference distance from interdigital transducer (IDT). The sensor was hermetically sealed in an all-quartz-package (APQ) technology and embedded in the **tire** . It can **measure** the **tire** pressure and temperature parameters automatically. According to the measurement result, the sensor systems can estimate the tire state intelligently and present the driver an alarm when the pressure or temperature was abnormal. The theory of measuring pressure and temperature is discussed and analysis for measures with pressures from 150 kPa to 300 kPa and temperatures from 25 degrees C to 95 degrees C is conducted. The results of measurement agree with the theory well. (16 Refs)
Subfile: B C
Descriptors: alarm systems; hermetic seals; interdigital transducers; pressure measurement; surface acoustic wave delay lines; surface acoustic wave sensors; temperature measurement; tyres; wireless sensor networks
Identifiers: intelligent tires; wireless passive surface acoustic wave sensors; SAW sensor; delay lines; **reflectors** ; interdigital transducer; IDT; all-quartz-package technology; pressure measurement; temperature measurement; sensor systems; alarm system; 150 to 300 kPa; 25 to 95 degC
Class Codes: B2860C (Acoustic wave devices); B7230 (Sensing devices and transducers); B7810C (Sonic and ultrasonic transducers); B7320R (Thermal variables measurement); B7320V (Pressure and vacuum measurement); B0170J ( Product packaging); C3360B (Road-traffic system control); C3240 ( Transducers and sensing devices)
Numerical Indexing: pressure 1.5E+05 to 3.0E+05 Pa; temperature 2.98E+02 to 3.68E+02 K


20/9/9 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX


014495916 **Image available**
WPI Acc No: 2002-316619/200236
XRPX Acc No: N02-247800

**Surface profile measurement method for e.g. tire surface, involves subdividing measurement signal corresponding to surface region for determining profile depth of each surface region**

Patent Assignee: CONTINENTAL AG (CONW )
Inventor: GESSNER R; WILANEK E
Number of Countries: 094 Number of Patents: 003
Patent Family:

| Patent No | Kind | Date | Applicat No | Kind | Date | Week | |
|---|---|---|---|---|---|---|---|
| DE 10032387 | A1 | 20020131 | DE 1032387 | A | 20000706 | 200236 | B |
| WO 200212827 | A2 | 20020214 | WO 2001EP7613 | A | 20010704 | 200236 | |
| AU 200218156 | A | 20020218 | AU 200218156 | A | 20010704 | 200244 | |

Priority Applications (No Type Date): DE 1032387 A 20000706
Patent Details:

| Patent No | Kind | Lan | Pg | Main IPC | Filing Notes |
|---|---|---|---|---|---|
| DE 10032387 | A1 | | 6 | G01B-021/20 | |
| WO 200212827 | A2 | G | | G01B-011/00 | |

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

| | | | | |
|---|---|---|---|---|
| AU 200218156 | A | | G01B-011/00 | Based on patent WO 200212827 |


Abstract (Basic): DE 10032387 A1

NOVELTY - A portion of signal pulse (S) emitted by a signal source (1) is reflected by several **reflectors** (5a-5c) and the sub-signal pulses (S1-S3) are made to fall on the surface regions (8a-8c) of the surface of e.g. a **tire** (7). The obtained **measurement** signal is subdivided corresponding to the surface regions and profile depth of each surface region is determined.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for **tire** profile **measurement** device.

USE - For measuring profile of e.g. vehicle tire or conveyor belt.

ADVANTAGE - Profile measurement of even large surfaces can be done quickly by using a single signal source thus reducing cost. By mounting the profile measurement device in the wheel box of vehicle run-time **measurement** of **tire** profile is possible.

DESCRIPTION OF DRAWING(S) - The figure shows a sectional side view of **tire** profile **measurement** device.

Signal source ((1)
**Reflectors** (5a-5c)
Tire (7)
Surface regions (8a-8c)
Signal pulse (S)
Sub-signal pulses (S1-S3)
pp; 6 DwgNo 2/2


Title Terms: SURFACE; PROFILE; MEASURE; METHOD; SURFACE; SUBDIVIDED; MEASURE; SIGNAL; CORRESPOND; SURFACE; REGION; DETERMINE; PROFILE; DEPTH; SURFACE; REGION
Derwent Class: S02
International Patent Class (Main): G01B-011/00; G01B-021/20
International Patent Class (Additional): G01B-011/22; G01B-017/00; G01B-021/18
File Segment: EPI
Manual Codes (EPI/S-X): S02-A03B3

**20/9/11 (Item 6 from file: 350)**

DIALOG(R)File 350:Derwent WPIX


013726759 **Image available**
WPI Acc No: 2001-210989/200121
XRPX Acc No: N01-150791

**Vehicle movement controlling method involves generating signal used in controlling behavior of vehicle based on comparison result of measured deformation of tire with predetermined value of deformation**

Patent Assignee: PIRELLI PNEUMATICI SPA (PIRE ); PIRELLI TYRE SPA (PIRE )
Inventor: CARETTA R; CESARINI R; MANCOSU F
Number of Countries: 095 Number of Patents: 012
Patent Family:

| Patent No | Kind | Date | Applicat No | Kind | Date | Week |
|---|---|---|---|---|---|---|
| WO 200108908 | A1 | 20010208 | WO 2000EP6857 | A | 20000718 | 200121 B |
| AU 200064353 | A | 20010219 | AU 200064353 | A | 20000718 | 200129 |
| BR 200012893 | A | 20020416 | BR 200012893 | A | 20000718 | 200234 |
| | | | WO 2000EP6857 | A | 20000718 | |
| EP 1202867 | A1 | 20020508 | EP 2000951399 | A | 20000718 | 200238 |
| | | | WO 2000EP6857 | A | 20000718 | |
| KR 2002035568 | A | 20020511 | KR 2002701346 | A | 20020130 | 200272 |
| JP 2003505296 | W | 20030212 | WO 2000EP6857 | A | 20000718 | 200321 |
| | | | JP 2001513607 | A | 20000718 | |
| US 20030050743 | A1 | 20030313 | US 99147422 | P | 19990806 | 200321 |
| | | | US 2000625350 | A | 20000725 | |
| | | | US 2002227226 | A | 20020826 | |
| CN 1433360 | A | 20030730 | CN 2000812440 | A | 20000718 | 200365 |
| US 6763288 | B2 | 20040713 | US 99147422 | P | 19990806 | 200446 |
| | | | US 2000625350 | A | 20000725 | |
| | | | US 2002227226 | A | 20020826 | |
| EP 1449684 | A2 | 20040825 | EP 2000951399 | A | 20000718 | 200456 |
| | | | EP 200412038 | A | 20000718 | |
| EP 1202867 | B1 | 20040929 | EP 2000951399 | A | 20000718 | 200464 |
| | | | WO 2000EP6857 | A | 20000718 | |
| | | | EP 200412038 | A | 20000718 | |
| DE 60014392 | E | 20041104 | DE 14392 | A | 20000718 | 200474 |
| | | | EP 2000951399 | A | 20000718 | |
| | | | WO 2000EP6857 | A | 20000718 | |

Priority Applications (No Type Date): US 99147422 P 19990806; EP 99114962 A 19990730
Patent Details:

| Patent No | Kind | Lan | Pg | Main IPC | Filing Notes |
|---|---|---|---|---|---|
| WO 200108908 | A1 | E | 56 | B60C-023/06 | |

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW

| | | | | |
|---|---|---|---|---|
| AU 200064353 | A | | B60C-023/06 | Based on patent WO 200108908 |
| BR 200012893 | A | | B60C-023/06 | Based on patent WO 200108908 |
| EP 1202867 | A1 | E | B60C-023/06 | Based on patent WO 200108908 |

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI

| | | | | |
|---|---|---|---|---|
| KR 2002035568 | A | | B60C-023/06 | |
| JP 2003505296 | W | 52 | B60G-017/00 | Based on patent WO 200108908 |
| US 20030050743 | A1 | | G06F-017/00 | Provisional application US 99147422 |
| | | | | Cont of application US 2000625350 |
| CN 1433360 | A | | B60C-023/06 | |

US 6763288 B2 G06F-007/00 Provisional application US 99147422
Cont of application US 2000625350
EP 1449684 A2 E B60C-023/06 Div ex application EP 2000951399
Div ex patent EP 1202867
Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
EP 1202867 B1 E B60C-023/06 Related to application EP 200412038
Related to patent EP 1449684
Based on patent WO 200108908
Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
DE 60014392 E B60C-023/06 Based on patent EP 1202867
Based on patent WO 200108908

Abstract (Basic): WO 200108908 A1
NOVELTY - A signal used in controlling the behavior of the vehicle is generated based on comparison result of **measured** deformation of **tire** with predetermined value of deformation from a database. The actual tire deformation is determined or measured using reflected signal emitted by sensor (11) to the tire. A **reflector** in the tire sends back the signal to the sensor.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:
(a) a vehicle controlling system; and
(b) a pneumatic wheel for vehicle.
USE - For controlling behavior of vehicle in motion by monitoring operating condition of vehicle tire.
ADVANTAGE - Enables appropriate corrective action to be applied on vehicle and or control system through compared deformation values to effectively keep the behavior of the vehicle within the limits of a predetermined behavior.
DESCRIPTION OF DRAWING(S) - The figure shows a block diagram of the **tire monitoring** and vehicle control system.
Sensor (11)
pp; 56 DwgNo 12/13
Title Terms: VEHICLE; MOVEMENT; CONTROL; METHOD; GENERATE; SIGNAL; CONTROL; BEHAVE; VEHICLE; BASED; COMPARE; RESULT; MEASURE; DEFORM; PREDETERMINED; VALUE; DEFORM
Derwent Class: Q11; Q12; Q17; Q18; S02; X22
International Patent Class (Main): B60C-023/06; B60G-017/00; G06F-007/00; G06F-017/00
International Patent Class (Additional): B60C-019/00; B60G-017/015; B60R-016/02; B60T-008/58; G01B-021/32; G08C-017/02
File Segment: EPI; EngPI
Manual Codes (EPI/S-X): S02-A08C; S02-J02A; X22-A03F; X22-C02C1; X22-C02C3; X22-E02B

**20/9/12 (Item 1 from file: 347)**
DIALOG(R)File 347:JAPIO


03931506 **Image available**
**MEASUREMENT** OF **TIRE** WIDTH AND ITS DEVICE

PUB. NO.: 04-296606 [JP 4296606 A]
PUBLISHED: October 21, 1992 (19921021)
INVENTOR(s): YONEZAWA TAKESHI
APPLICANT(s): YOKOHAMA RUBBER CO LTD THE [000671] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 03-061742 [JP 9161742]

FILED: March 26, 1991 (19910326)
INTL CLASS: [5] G01B-011/04
JAPIO CLASS: 46.1 (INSTRUMENTATION -- Measurement); 26.2 (TRANSPORTATION -- Motor Vehicles)
JAPIO KEYWORD: R110 (INSTRUMENTATION -- Digital Display Instrumentation); R131 (INFORMATION PROCESSING -- Microcomputers & Microprocessers)
JOURNAL: Section: P, Section No. 1496, Vol. 17, No. 107, Pg. 68, March 04, 1993 (19930304)

ABSTRACT

PURPOSE: To **measure** **tire** width accurately in a short period of time.

CONSTITUTION: Two pieces of mobile **reflectors** 6a, 6b set on one side part of a conveyor 2 are lifted up and down by a lifting device 4 vertically orthogal with a tire conveyance direction X while counting lifting position against a tire W conveyed on a conveyor 2 and reflected to a **reflector** 10 set on the other side part of the conveyor 2 by way of reflecting an optical axis Q projected from optical detectors 9a, 9b provided with light projection and reception functions under it to the mobile **reflectors** 6a, 6b. The mobile **reflectors** 6a, 6b lift up and down back and forth between an upper limit proximity switch SW(sub 1) and a lower limit proximity switch SW(sub 2) by the lifting device 4, and when the conveyed tire W shields an optical axis Qa, position of the mobile **reflectors** 6a, 6b at this time of shielding is detected by an encoder 5. This value is processed by a centralized processing unit and **tire** width is **measured** .
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36/9/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX


016590734 **Image available**
WPI Acc No: 2004-749468/200474
XRPX Acc No: N04-592089
**Surface-wave sensor for** measuring **distortion in a motor vehicle** tire **has a sensor chip with an antenna connection and** reflectors **assigned to interdigital transducers**
Patent Assignee: CONTINENTAL AG (CONW )
Inventor: CYLLIK A; HUININK H; KILSCH A; VOLK H
Number of Countries: 001 Number of Patents: 001
Patent Family:

| Patent No | Kind | Date | Applicat No | Kind | Date | Week | |
|---|---|---|---|---|---|---|---|
| DE 10314653 | A1 | 20041014 | DE 10314653 | A | 20030401 | 200474 | B |

Priority Applications (No Type Date): DE 10314653 A 20030401
Patent Details:

| Patent No | Kind | Lan | Pg | Main IPC | Filing Notes |
|---|---|---|---|---|---|
| DE 10314653 | A1 | | 9 | G01L-005/18 | |

Abstract (Basic): DE 10314653 A1
NOVELTY - A single sensor chip (5) has two **measuring** devices (1,2) set at an angle to each other. Assigned to the **measuring** devices, interdigital transducers (7,8) on the sensor chip interconnect and emit signals at staggered times. A time-delay component allocated to the interdigital transducers fits on the sensor chip.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a motor vehicle **tire** with a surface-wave sensor for **measuring** distortion in a motor vehicle **tire** .
USE - For **measuring** distortion in a motor vehicle **tire** .
ADVANTAGE - Signal-expansion paths for the two **measuring** devices cross over each other.
DESCRIPTION OF DRAWING(S) - The drawing shows a basic connection diagram of a surface-wave sensor according to the present invention.
**Measuring** devices (1,2)
Surface-wave sensor (3)
Sensor chip (5)
Antenna connection (6)
Interdigital transducers (7,8)
Signal-expansion paths (9,10)
**Reflectors** (15-18)
pp; 9 DwgNo 1/5
Title Terms: SURFACE; WAVE; SENSE; **MEASURE** ; DISTORT; MOTOR; VEHICLE; SENSE; CHIP; ANTENNA; CONNECT; REFLECT; ASSIGN; INTERDIGITAL; TRANSDUCER
Derwent Class: S02; W05; X22
International Patent Class (Main): G01L-005/18
File Segment: EPI
Manual Codes (EPI/S-X): S02-A02D; **S02-J02A** ; W05-D06A1A; W05-D07D; W05-D08E; **X22-X06**

36/9/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX


015913628 **Image available**
WPI Acc No: 2004-071468/200407
Related WPI Acc No: 2004-082023; 2005-072998

XRAM Acc No: C04-029545
XRPX Acc No: N04-057477

**Radio frequency device used as identification device of tire , has antenna element surrounded by insulating coating having dielectric constant less than dielectric constant of rubber in which antenna is embedded**

Patent Assignee: MICHELIN RECH & TECH SA (MICL ); SOC TECHNOLOGIE MICHELIN (MICL ); ADAMSON J D (ADAM-I); KELLY C E (KELL-I); O'BRIEN G P (OBRI-I)
Inventor: ADAMSON J D; KELLY C E; O'BRIEN G P
Number of Countries: 102 Number of Patents: 003
Patent Family:

| Patent No | Kind | Date | Applicat No | Kind | Date | Week |
|---|---|---|---|---|---|---|
| WO 2003105511 | A1 | 20031218 | WO 2002US38411 | A | 20021203 | 200407 B |
| AU 2002351191 | A1 | 20031222 | AU 2002351191 | A | 20021203 | 200445 |
| US 20040159383 | A1 | 20040819 | WO 2002US18411 | A | 20020611 | 200455 |
| | | | WO 2002US38411 | A | 20021203 | |
| | | | US 2004775623 | A | 20040210 | |

Priority Applications (No Type Date): WO 2002US18411 A 20020611
Patent Details:

| Patent No | Kind | Lan | Pg | Main IPC | Filing Notes |
|---|---|---|---|---|---|
| WO 2003105511 | A1 | E | 19 | H04Q-007/32 | |

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
Designated States (Regional): AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SI SK SL SZ TR TZ UG ZM ZW

| | | | |
|---|---|---|---|
| AU 2002351191 | A1 | H04Q-007/32 | Based on patent WO 2003105511 |
| US 20040159383 | A1 | B60C-023/00 | CIP of application WO 2002US18411 |
| | | | Cont of application WO 2002US38411 |

Abstract (Basic): WO 2003105511 A1

NOVELTY - The radio frequency device (10) has a radio device (11) and an antenna (12) embedded in a rubber material for operation in a frequency range of at least 130MHz. The antenna has an antenna element (20) that is surrounded by an insulating coating (22) having a dielectric constant less than the dielectric constant of the rubber.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) **tire** ; and

(2) method of embedding radio frequency antenna in **tire** .

USE - Radio frequency (RF) device embedded in **tire** (claimed) for use as identification or tracking device during manufacturing, distribution and sales activities. Also for use as receivers, transmitters, transponders, **reflectors** and as **monitoring** device for **measuring** temperature, pressure or other physical parameters of **tire** .

ADVANTAGE - The insulating coating material acts as adhesive to bond the antenna to the rubber material. Hence eliminates need for one or two adhesives and associated application steps, thereby simplifying the manufacturing process. Also the coating material provides an improvement in the transmission range of the antenna.

DESCRIPTION OF DRAWING(S) - The figure shows a schematic view of the radio frequency device.

radio frequency device (10)
radio device (11)
antenna (12)
antenna element (20)

insulating coating (22)
pp; 19 DwgNo 1/5
Technology Focus:
TECHNOLOGY FOCUS - POLYMERS - The insulating coating material is selected from material such as thermoplastic polycarbonate, butadiene rubber, low carbon rubber, isocyanate-based adhesive, polyethylene, insulating varnish, epoxy, thermoplastic elastomer (TPE) cellulose acetate, parylene and insulating polyester varnish.
Title Terms: RADIO; FREQUENCY; DEVICE; IDENTIFY; DEVICE; ANTENNA; ELEMENT; SURROUND; INSULATE; COATING; DIELECTRIC; CONSTANT; LESS; DIELECTRIC; CONSTANT; RUBBER; ANTENNA; EMBED
Derwent Class: A95; Q11; W02
International Patent Class (Main): **B60C-023/00** ; H04Q-007/32
International Patent Class (Additional): **B60C-019/00**
File Segment: CPI; EPI; EngPI
Manual Codes (CPI/A-N): A12-T01
Manual Codes (EPI/S-X): W02-G05A
Polymer Indexing (PS):
<01>
*001* 2004; H0124-R
*002* 2004; ND01; ND07; N9999 N7147 N7034 N7023; K9574 K9483; Q9999 Q9256-R Q9212; Q9999 Q7501; K9347-R K9790; B9999 B3214 B3203 B3190; N9999 N7090 N7034 N7023; B9999 B5447 B5414 B5403 B5276
<02>
*001* 2004; H0317; P0862 P0839 F41 F44 D01 D63
*002* 2004; R00806 G0828 G0817 D01 D02 D12 D10 D51 D54 D56 D58 D84; H0000 ; H0124-R; P0328 ; P0339
*003* 2004; R00326 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D82; H0000; P1150 ; P1161
*004* 2004; P0464-R D01 D22 D42 F47
*005* 2004; H0135 H0124
*006* 2004; R01853-R G3645 G3634 D01 D03 D11 D10 D23 D22 D31 D42 D50 D63 D76 F24 F34 F41 H0293 P0599 G3623
*007* 2004; P0839-R F41 D01 D63
*008* 2004; G2324 D01 D19 D18 D31 D76 D50 D88; H0000; H0011-R
*009* 2004; ND01; ND07; N9999 N7147 N7034 N7023; K9574 K9483; Q9999 Q9256-R Q9212; Q9999 Q7501; K9347-R K9790; B9999 B3214 B3203 B3190; Q9999 Q7114-R; K9676-R; K9712 K9676
<03>
*001* 2004; G1843-R D01 F73; H0000; H0011-R
*002* 2004; ND01; ND07; N9999 N7147 N7034 N7023; K9574 K9483; Q9999 Q9256-R Q9212; Q9999 Q7501; K9347-R K9790; B9999 B3214 B3203 B3190; Q9999 Q7114-R; K9676-R; K9712 K9676; Q9999 Q6644-R
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31/9/1 (Item 1 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)


07029196 E.I. No: EIP04388368097
**Title: Design considerations on intelligent tires utilizing wireless passive surface acoustic wave sensors**
Author: Zhang, Xiangwen; Wang, Zhixue; Gai, Leifu; Ai, Yunfeng; Wang, Feiyue
Corporate Source: Key Lab. Complex Syst./Intell. Sci. Institute of Automation Chinese Academy of Sciences, Beijing, 100080, China
Conference Title: WCICA 2004 - Fifth World Congress on Intelligent Control and Automation, Conference Proceedings
Conference Location: Hangzhou, China Conference Date: 20040615-20040619
Sponsor: Zhejiang University; National Laboratory of Industrial Control Technology; Zhejiang University of Technology
E.I. Conference No.: 63444
Source: Proceedings of the World Congress on Intelligent Control and Automation (WCICA) WCICA 2004 - Fifth World Congress on Intelligent Control and Automation, Conference Proceedings v 4 2004.
Publication Year: 2004
Language: English
Document Type: CA; (Conference Article) Treatment: T; (Theoretical)
Journal Announcement: 0409W5
Abstract: The design level of the intelligent **tire** utilizing wireless passive surface acoustic wave(SAW) sensors decided its practicability. We have developed a wireless passive SAW sensor with two sides of SAW delay lines. It can measure the **tire** pressure and temperature at the same time. The basic structure of intelligent **tires** utilizing this SAW sensor is presented. In the design, deformation sensitivity coefficient, temperature sensitivity coefficient and electromechanical coupling factor of SAW sensor substrate were defined as the factors of choice of the substrate. The sensors were coded by **reflectors** . In the signal processing, the method of averaging the received pulses in a few periods was used to increase signal-noise-ratio(SNR). In the decision-making of the **tire** state, we consider the trend of the **tire** pressure variation and the relation of **tire** pressure and **tire** temperature to increase the **tire** 's intelligent level. All the considerations improved the practicability of this intelligent **tire** . 16 Refs.
Descriptors: *Acoustic surface wave devices; Intelligent agents; Signal to noise ratio; Decision making; Abrasion; Thermoanalysis; **Electromagnetism** ; Wireless telecommunication systems; Electromechanical devices
Identifiers: Intelligent **tires** ; Deformation sensitivity coefficient; Pressure variation; Electromechanical coupling
Classification Codes:
752.1 (Acoustic Devices); 723.4 (Artificial Intelligence); 716.1 (Information & Communication Theory); 912.2 (Management); 604.1 (Metal Cutting)
752 (Sound Devices, Equipment & Systems); 723 (Computer Software, Data Handling & Applications); 716 (Electronic Equipment, Radar, Radio & Television); 912 (Industrial Engineering & Management); 604 (Metal Cutting & Machining); 801 (Chemistry); 701 (Electricity & Magnetism)
75 (SOUND & ACOUSTICAL TECHNOLOGY); 72 (COMPUTERS & DATA PROCESSING); 71 (ELECTRONICS & COMMUNICATION ENGINEERING); 91 (ENGINEERING MANAGEMENT); 60 (MECHANICAL ENGINEERING, GENERAL); 80 (CHEMICAL ENGINEERING, GENERAL); 70 (ELECTRICAL ENGINEERING, GENERAL)